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Maryland Agricultural College Bulletin

OCTOBER—DECEMBER

Vol. 7 1910 No. 2

Official publication.

SHORT COURSES

IN

AGRICULTURE
HORTICULTURE
POULTRY HUSBANDRY

COLLEGE PARK, MARYLAND

ISSUED QUARTERLY

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DO NOT CIRCULATE

FOREWORD.

The October-December number of the Maryland Agricultural College Bulletin has been devoted to presenting to the people of the State the details of the short winter course in agriculture, with short papers on topics of agricultural interest.

It is indicative of the progress the College is making in usefulness, and of its rapidly enlarging scope as a factor in the uplift and improvement of farming conditions in this State of widely diversified interests that in this number of the Bulletin are described three short courses to be given at the College during the winter of 1910-11, one intended for the general farmer, one for the fruit specialist, and one for the poultry husbandman.

As a single illustration of what the short course in agriculture is doing for its students, a gentleman from Allegany County called at this office a short time since to express, as he said, his high appreciation of the short course work and his thanks to the instructors engaged in it. "My son," he said, "with my consent, but against my desire, for I thought it would be time wasted, took your short course in agriculture winter before last. When he returned home in the spring, he asked for a piece of land on which to grow a crop of corn in accordance with what he had learned at college. He was given the land and raised more corn to the acre than had ever been grown on the farm in the knowledge of myself or my father, who has lived on the farm all his life."

"Ten ears of this corn, exhibited by my son at the Baltimore Corn Show of 1909 won the first premium on yellow corn from the Mountain District."

All of these short courses are well arranged, practical courses, into which is crowded the greatest amount possible of useful information of a kind that the student on returning home can put into immediate practice with assurance of larger and more profitable returns from his labor.

There are in Maryland hundreds of young men who expect to become farmers, there are hundreds of older men already farmers, who would derive incalculable benefit from taking one or more of these courses, and the time and cost are so comparatively insignificant that few indeed will have to remain away on that account.

While the Maryland Agricultural College is not a "co-ed" institution, and does not take women in its regular courses, yet exception

is made in the short courses, and especially in the poultry school it is hoped that many farmers' wives and daughters will avail themselves of so excellent an opportunity to become familiar with all that is latest and best in poultry husbandry. Those in charge of the poultry school will feel greatly disappointed if there are not at least fifty to one hundred ladies enrolled.

TEN WEEKS' SPECIAL COURSE IN AGRICULTURE

BEGINNING WEDNESDAY, JANUARY 4, 1911

SYNOPSIS OF COURSE

I. SOILS—TWENTY-TWO HOURS

PROF. W. T. L. TALIAFERRO

The examination and classification of soils; the relation of soils to water, air, heat; adaptation of soils to crops; improvement of physical condition of soils; drainage, ventilation, cultivation, green manures, cover crops, rotation of crops.

II. FIELD CROPS—THIRTY HOURS

This course embraces the growing of farm crops, including the selection of seed, preparation of the soil, fertilizing, cultivation and harvesting. Particular attention is given to the growing of alfalfa, cow-peas, clover and other legumes for stock feeding and soil improvement.

The biggest crop in Maryland is the corn crop. A special effort is made to create in the student an enthusiastic interest in "better corn" and to show how better corn can be grown.

III. AGRICULTURAL CHEMISTRY—TWENTY HOURS

DR. H. B. MCDONNELL

Soils; their formation, classification and properties. The mineral constituents of soils and their bearing on plant growth. The best means of supplementing them when needed for plant growth.

IV. MANURES—TWENTY HOURS.

DR. H. B. MCDONNELL.

The best methods of preserving and applying farm manure. The relative value of the different manures and fertilizers. The maintenance of soil fertility. The place of lime in the farm economy.

V. STOCK FEEDING—TWENTY HOURS

MR. ROBERT H. RUFFNER

The work in Stock Feeding will cover the principles of animal nutrition, the composition of feeding stuffs, their combination into properly balanced rations, and the relation between the sustenance of animals and their products. The subject will be considered under the following heads:

1. The chemical elements and compounds in feeds.
2. Function of the nutrients.
3. Digestion of food.
4. Cattle foods. Commercial feeding stuffs.
5. The selection and compounding of rations.
6. Feeding growing animals.
7. Feeding for the production of milk, meat, wool, eggs and energy, or work.

VI. FARM LIVE STOCK—TWENTY-EIGHT HOURS

MR. ROBERT H. RUFFNER

Principal breeds of horses, cattle, sheep and hogs; their uses and adaptation; principles and practice of stock breeding; stock judging.

This section includes a thorough course in judging farm live stock, especially dairy and beef cattle. The student is taught by actual handling of the stock and the use of the score card to correctly select animals for different purposes and to accurately gauge their value for their special purpose.

VII. DAIRYING—TWENTY HOURS

MR. ROBERT H. RUFFNER

The dairy instruction will consist of lectures on bacteriology and the necessary precautions to insure a good product; lectures on the obtaining of cream from the milk, comparing the old gravity process and the use of separators; on milk testing with the Babcock test, and the place of the test in modern dairying and on butter making, with the use of the acid test, which practically insures the making of good butter. The lectures on milk testing and butter making

will be supplemented by practical instruction, and each student will be required to handle the Babcock test, as well as the separator and the churn.

VIII. FRUIT-GROWING—THIRTY HOURS

PROF. C. P. CLOSE, ASSOCIATE PROF., HERMAN BECKENSTRATER, MR. W. R. BALLARD.

This will consist of lectures upon the selection of land for different kinds of orcharding and small-fruit growing; the propagation, the laying out, cultivation, fertilization, and pruning of small trees, grape vines and small fruits. Practical instruction will be given in seedage, cuttage, layerage, graftage and pruning of all kinds of fruit trees and vines.

IX. TRUCK-GROWING—TEN HOURS

ASSOCIATE PROF. HERMAN BECKENSTRATER

This is a discussion of our most important truck crops from a commercial point of view. It includes the selection of land, the construction of cold frames, hot-beds and modern green-houses for growing vegetables; the propagation of plants, fertilization and cultivation of truck crops and marketing.

X. VETERINARY SCIENCE—FORTY HOURS

DR. S. S. BUCKLEY

An elementary study of the diseases of live stock should be made by everyone having charge of domesticated animals. Frequently farm animals become a source of considerable loss through neglect or unintelligent management when out of condition.

While the treatment of sick animals should rest with veterinarians trained in such work, yet the owner or manager must know when such services are needed and how to carry on such treatment intelligently when directed by the veterinarian. The effort is made in the following course of lectures to prepare the student with such knowledge and to enable him the better to understand the bulletins, reports and treatises upon veterinary subjects which he may possess:

1. Nutrition.
2. Diseases due to mistakes in feeding.
3. Infectious diseases.
4. Cattle and their common diseases.
5. The examination of a horse for soundness.
6. Lameness.
7. The foot—its care and shoeing.
8. The use of medicines, and minor operations.
9. Stable sanitation and the prevention of tuberculosis.

XI. TOBACCO—FIVE HOURS

PROF. H. J. PATTERSON

The plant bed, culture, harvesting, curing, marketing and effects of fertilizing elements upon the quality.

XII. PLANT PHYSIOLOGY AND PATHOLOGY—FIFTEEN HOURS

PROF. J. B. S. NORTON

Five lectures on the general principles of plant life and structure; how plants live, grow and reproduce, and how they are influenced by different conditions of light, temperature, moisture and other factors in their surroundings, considered with special reference to agricultural problems. Five lectures on the causes, symptoms and treatment of plant diseases, with practice work in examination and study of diseased plants and the preparation and use of remedies and preventatives.

This course will include the discussion of the laws of plant life, the uses and structure of plant parts, nutrition, growth, formation of products by the plant, reproduction by seeds and otherwise, seed testing, useful plants, weeds, poisonous plants, causes of disease, parasitic fungi, preparation of fungicides, and spraying.

XIII. ECONOMIC ENTOMOLOGY—TWENTY HOURS

PROF. T. B. SYMONS

It has recently been estimated that insect injury to agricultural products amounts to over seven hundred millions of dollars each year. It is not only the actual destruction of the crops that causes

loss, the effect upon the products may be to reduce the grade and make them more or less unsalable and unprofitable. These lectures are designed to treat of some of the more common pests that are responsible for this loss, with concise considerations of their life histories and habits and to discuss fully the means for control at our command.

Attention will also be given to the making and applying of insecticides.

XIV. CARPENTRY AND BLACKSMITHING—FIFTY-FIVE HOURS

PROF. HARRY GWINNER

ASSISTANT, MR. CRISP.

A knowledge of this is very important to the agriculturist of this day. The equipment for this instruction is complete. The industrious, eager seeker after knowledge will accomplish much in the line of this work in the time allotted.

1. Sharpening of tools.
2. Adjustment of tools.
3. Sawing, planing, chiseling and boring.

Practical lessons in blacksmithing, mechanism and care of forge shop and smith's tools. Preparation of forge for fire. Building and managing the fires and fluxes. Forging, bonding, welding.

Students preferring to do so may take pipe fitting instead of blacksmithing.

XV. POULTRY HUSBANDRY—EIGHTY HOURS.

MR. ROY H. WHITE

Poultry Expert of the Maryland Agricultural Experiment Station.
with Lecturers on Special Topics.

This is the ten days' poultry course described later on, which all ten weeks students will be given an opportunity to take in full.

XVI. ROAD CONSTRUCTION AND LEVELING—FIVE HOURS

PROF. THOMAS H. TALIAFERRO

A brief treatment of the principles involved and the methods used in the location, construction and maintenance of country roads.

An opportunity will be given those desiring it to learn the use of the level in laying out drains, etc. Students wishing to take the work in leveling must report to the instructor in charge within two weeks after the opening of the term.

XVII. THE STUDY OF AGRICULTURAL LITERATURE—TEN HOURS

PROF. F. B. BOMBERGER

This course is given in the college library. The student is instructed how intelligently to glean from the agricultural press and books of reference, is made acquainted with the bulletins of the State Experiment Stations and colleges and the National Department of Agriculture and is taught how to use them to the best advantage.

REQUIRED AND ELECTIVE WORK

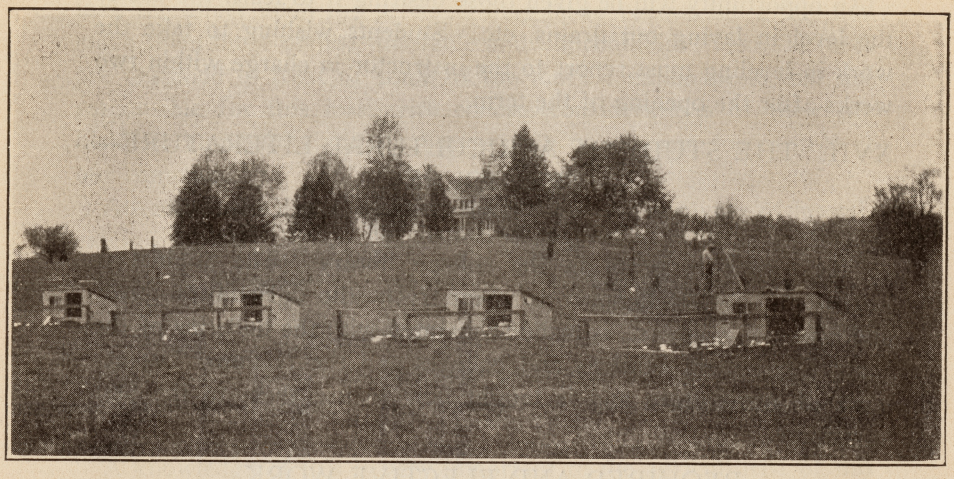
Each student will be required to take not less than three hundred hours of work. Two hundred and fifty of these must be devoted to the following specified studies:

Soils, 22 hours.
Farm Dairying, 20 hours.
Manures, 20 hours.
Field Crops, 30 hours.
Poultry Husbandry, 50 hours.
Agricultural Chemistry, 20 hours.
Farm Live Stock, 28 hours.
Stock Feeding, 20 hours.
Horticulture, 40 hours.

The other fifty hours will be devoted to such topics as the student may elect.

For further information, write President R. W. Silvester or Mr. W. T. L. Taliaferro,

COLLEGE PARK, MD.



Brooding Chickens in Outdoor Brooders.

TEN DAYS POULTRY SCHOOL.

JANUARY 16TH TO 26TH, 1911

The Board of Trustees at their June meeting appropriated to the College Department of Agriculture five hundred dollars for the purpose of holding a ten-day poultry school at the College during the session of 1910-11. The time from January 16 to 26, 1911, was selected as the most fitting for the school and a course of instruction was arranged.

The plan is to devote an hour each morning to text-book work conducted by Mr. Waite, the head of the poultry work at the Maryland Experiment Station, and Mr. Opperman, of the United States Department of Agriculture and formerly of the Maryland Station.

The rest of the morning will be devoted to lectures on special subjects by men of recognized ability and prominent in the poultry world. The afternoons will be devoted to practical work in assembling and handling incubators and brooders; construction of coops and houses; compounding of rations for definite feeding purposes; preparing of fowls for market, including killing, dressing and packing; the scoring and judging of various breeds of fowls from both the economic and show pen points of view, etc.

The management of the poultry school is in the hands of Mr. W. T. L. Taliaferro, of the Maryland Agricultural College, and

Mr. Roy H. Waite, of the Maryland Agricultural Experiment Station. For more detailed information an inquiry should be addressed to either of these gentlemen.

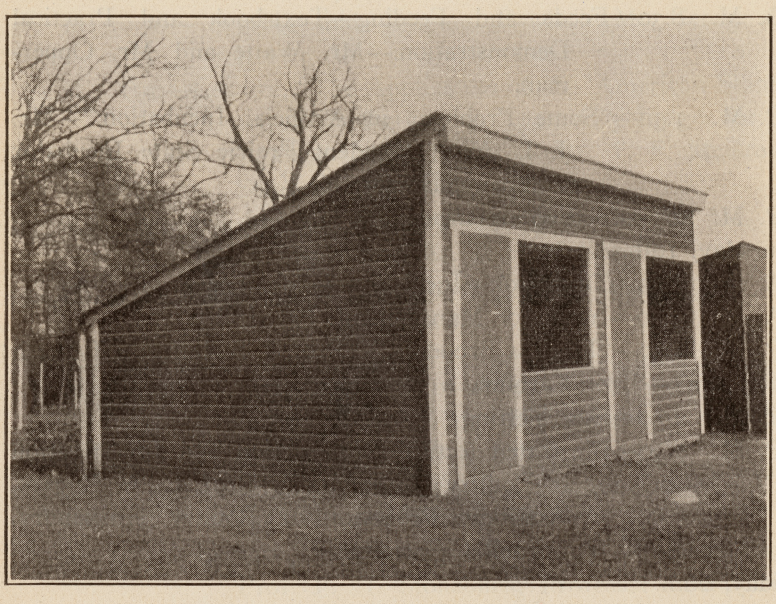


Fig. 2.—A type of cloth or open-front poultry House.

POULTRY SCHOOL

MARYLAND AGRICULTURAL COLLEGE

JANUARY 16TH TO 26TH, 1911

SCHEDULE OF WORK

Monday, 16th.

A. M. —Registration and assignment to quarters.

P. M. 1.30—Inspection of Station Poultry Plant.

P. M. 7.30—Address of welcome, President Silvester.

P. M. 8.00—"The Importance of the Poultry Industry."—Mr. Geo. O. Brown, Secretary Maryland Poultry and Pigeon Association, Baltimore, Md.

Tuesday, 17th.

A. M. 8.30—Text-book and Demonstrations, Housing and Yards.—Mr. Waite and Mr. Opperman.

P. M. 1.30—Lecture, "Natural Incubation and Demonstration of Brooding Coop."—Mr. M. A. Ide, Woodstock, Md.

Wednesday, 18th.

A. M. 8.30—Feeds and Feeding—Text-book and Practical Demonstration.—Mr. Waite and Mr. Opperman.

P. M. 1.30—"Some Problems in Artificial Incubation."—Mr. J. L. Nix, President Prairie State Incubator Company, Homer, N. Y.

P. M. 2.30—Setting up incubators.

Thursday, 19th.

A. M. 8.30—Text-book—Incubation.—Mr. Waite.

A. M. 9.30—Incubator Management, Practical.

P. M. 1.30—"Fireless Brooders."—Prof. J. S. Jeffrey, of North Carolina.

P. M. 2.30—Egg Testing.

P. M. 7.30—Illustrated lecture, "Instruction and Investigation in Poultry Husbandry."—Prof. C. A. Rogers, Assistant Professor of Poultry Husbandry, Cornell University.

Friday, 20th.

A. M. 8.30—Text-book—Brooding.—Mr. Waite.

A. M. 9.30—"Principles of Feeding Laying Hens."—Prof. C. A. Rogers, Cornell.

A. M. 10.30—Brooder Management, Practical.

P. M. 1.30—"Principles of Breeding."—Prof. C. A. Rogers, Cornell University.

P. M. 2.30—Brooder Management, Practical.

Saturday, 21st.

A. M. 8.30—Text-book — Rearing of Young Stock. — Mr. Waite.

A. M. 9.30—Caponizing, Practical.

P. M. 1.30—"How I Feed Chicks."—Mrs. Maybell C. Earp, Beltsville, Md.

P. M. 2.30—"The Colony System of Poultry Farming."—Mr. Charles E. Bryan, Havre de Grace, Md.

P. M. 3.30—"Growing Crops for Poultry."—Mr. H. P. Chaney, Burtonsville, Md.

Monday, 23rd.

A. M. 8.30—"Chicken Diseases."—Lecture and Demonstration by Dr. George Edward Gage, Biologist, Maryland Experiment Station.

A. M. 10.30—"Scoring and Judging Fowls."—Mr. George O. Brown.

P. M. 1.30—Lecture, "The Application of the 'American Standard of Perfection,' as Applied by Judges for or Against Utility Points."—Mr. T. F. McGrew, Scranton, Pa.

P. M. 2.30—Scoring and Judging—Demonstration by Mr. G. O. Brown and Mr. T. F. McGrew.

P. M. 7.30—"History of the Breeds."—Illustrated lecture by Mr. T. F. McGrew.

Tuesday, 24th.

A. M. 8.30—Lecture, "Diseases of Adult Fowls."—Dr. G. B. Morse, United States Department of Agriculture.

A. M. 9.30—Lecture, "Advantages of a Private Trade."—Mr. J. C. Hunter, Vienna, Va.

A. M. 10.30—Lecture, "Marketing of Poultry Products," by Prof. F. H. Stoneburn, Professor of Poultry Husbandry, Connecticut Agricultural College, Storrs, Conn.

P. M. 1.30—Lecture, "Poultry Culture and Its Relation to Agriculture."—Prof. F. H. Stoneburn, Storrs, Conn.

P. M. 2.30—Killing, Dressing and Packing Poultry—Demonstration.

Wednesday, 25th.

A. M. 8.30—Lecture, "Poultry Parasites."

A. M. 9.30—"Poultry Sanitation"—Demonstration.

P. M. 1.30—Lecture, "The Production of Broilers and Roasters."—Mr. John H. Robinson, Boston, Mass.

P. M. 2.30—Question Box.

P. M. 7.30—Lecture, "Poultry Keeping in the Little Compton District of Rhode Island."—Mr. John Robinson, Boston, Mass.

Thursday, 26th.

A. M. 8.30—Written Review and Examinations.

A TWO WEEKS COURSE

FOR

PRACTICAL MEN, ORCHARDISTS, GARDENERS, ETC.,

IN

1. FRUIT GROWING.
2. INSECT PESTS.
3. PLANT DISEASES.
4. SPRAYING APPARATUS.

COMMENCING JANUARY 30, 1911.

GIVEN FREE

BY

THE STATE HORTICULTURAL DEPARTMENT

GENERAL OUTLINE OF COURSES

HORTICULTURE

PROF. C. P. CLOSE, *State Horticulturist*

I. General principles of fruit growing.
II. Plant Propagation—Nursery methods.
III. The selection of site, varieties, etc.
IV. Preparation of soil and planting of orchards.
V. Orchard management.
VI. Handling of crop.
    1. Time of picking.
    2. Method of picking.
    3. Demonstration of different packs.
VII. Marketing of crop.
    1. Selecting markets.
    2. Co-operative marketing.
VIII. Discussion of small fruits.
IX. Nut culture.
X. Home decoration and ornamentals.
XI. General summary.

PLANT PATHOLOGY

PROF. J. B. S. NORTON, *State Pathologist*

I. Composition, structure and organs of plants.
II. How plants live, grow and produce.
III. Principles of disease in plants.
IV. Plant hygiene and disease prevention.
V. Treating plant diseases. Fungicides.
VI. Non-parasitic and general diseases.
VII. Diseases of apple, pear and quince.
VIII. Diseases of peach, plum and cherry.
IX. Diseases of other fruits and nuts.
X. Diseases of potatoes, tomatoes, etc.
XI. Diseases of other vegetables.
XII. Diseases of field crops.
XIII. Diseases of ornamentals and green-house stock.
XIV. Methods for further study.

ENTOMOLOGY

PROF. T. B. SYMONS, *State Entomologist.*

I. General discussion of injurious and beneficial insects and their relation to agriculture.
II. Practical study of insect anatomy, life history and development.
III. General principles of insect control.
IV. Special studies of insects affecting fruit trees and how to control them.
    1. Insects affecting apple.
    2. Insects affecting peach.
    3. Insects affecting cherry, pear and plums.
    4. Miscellaneous orchard pests.
V. Special studies of insects affecting small fruits and truck crops, and how to control them.
    1. Insects affecting strawberries.
    2. Insects affecting raspberries and blackberries.
    3. Insects affecting currants and gooseberries.
    4. Insects affecting tomatoes and potatoes.
    5. Insects affecting cabbage, etc.
    6. Insects affecting miscellaneous truck crops.

VI. General discussion of other insects of importance to farmers.
VII. Methods of controlling insects.
1. Insecticides, preparation and use.
2. Culture methods, trap crops, mechanical means, etc.
VIII. Discussion of the principles of spraying.
1. Apparatus, power outfits, hand pumps and accessories.
IX. Time to spray and different methods.
X. General summary.

GENERAL INFORMATION

The aim of the two weeks' course is to discuss in the most practical manner the various problems with which the growers must be familiar in order to secure greatest success.

The local inspectors for State Horticultural Department work will be selected from those taking this course.

TERMS

No tuition or laboratory fees will be charged in any of these courses. Students in the poultry school will be required to get one text-book of moderate cost.

ACCOMMODATIONS

Board and lodging at five dollars per week, may be had in the neighboring towns of Hyattsville, Riverdale, College Park and Berwyn. Electric cars make frequent connections.

In order that satisfactory arrangements may be made for board, etc., prospective students should communicate with the college as soon as possible.

THE BEGINNERS' PROFITS IN POULTRY

The term profit, as applied to poultry culture, may be defined as the difference between the selling price of the produce and the cost of production. It will be readily seen from this definition that profits can be increased in two ways. These are by increasing the selling price and by lowering the cost of production. One method is just as efficient as the other in so far as financial results are concerned. To give an example—say it costs two dollars to

keep a hen a year and the sale of her products brings in a revenue of three dollars. The profit according to our rule is one dollar; but if the selling price could be increased to three and one-half dollars the profit would be one and one-half dollars; or if the cost of production is reduced to one and one-half dollars the profit amounts to exactly the same. The profits have been increased fifty cents in both cases. Beginners are usually very attentive to getting all possible for their products, but often do not direct enough attention toward decreasing the cost of production.

As in all other forms of industry, profits are the influence that attracts people to the poultry business. So many different results are given out at the present time, that the following question is a very common one, "How much profit can one expect from keeping poultry?" The question is a very hard one to answer satisfactorily and the answer usually starts off with the two words, "That depends."

A few of the things on which profits depend follow: They depend on the natural ability of the man, and on his experience in the business. These two are probably the most important, for most others are included in either one or the other. Market and climate conditions play an important part and often are the dividing line between success and failure. A man with sufficient experience, however, will never select a location unfavorable in these particulars if he is going into the business for the money that is to be made. Luck or chance often plays an important part in realizing poultry profits, but the experienced man manages, in some way, to make allowances for this factor and thus gets his usual returns.

Profits depend on the ability of the man just as much in poultry keeping as in any other business. It is unreasonable for a man, that has made a failure in other lines because of unbusiness-like methods, lack of attention to details and the like, to expect to make "money" from poultry keeping without first changing his methods. He should expect even poorer results because in the one case he must, of necessity, have some experience, while in the poultry business he has none whatever.

Net profits of one dollar per hen per year are considered a very conservative estimate by most poultrymen. The beginner learns this and often figures thus—"One man can care for a thousand hens, and if each hen brings in a profit of one dollar per year, I

should have a net income of one thousand dollars per year." This is not a very liberal estimate and most experienced men probably accomplish even better results. There is, however, a lot included in that word "experienced." As seems to be supposed by some, the poultry business is no exceptional industry in which any one can embark with absolute certainty of success.

There are two avenues open through which the prospective poultryman can gain experience. One is very slow, too slow in fact, and the other is too rapid. A combination of the two methods is necessary if the best results are to be obtained. The one is to gain experience by practical trials and the other is by studying the methods of others. There are a number of ways of making these other people's experiences your own. Among these are, reading poultry publications, studying poultry books, taking correspondence lessons, working on some up-to-date poultry plant and attending some school or college, at which instruction is given in poultry husbandry. Naturally, the quickest way of gaining experience is to combine a number of the methods mentioned. A good combination might be as follows: Take a college course of some kind, study poultry papers and books and then work for a time on some up-to-date plant. The information gained from the course, papers and books, would enable one to observe and study more easily the methods used by the practical man.

The idea that I have attempted to present in this article is that profits from poultry keeping are not more certain or uniform than those from any other business. Also that profits are, in a way, the measure of the man's ability and experience. There is at the present time a great demand for high class market poultry and eggs, and there is no reason why a man, if he is a lover of fowls and willing to work, cannot get as good results from the poultry business as from any other industry.

ROY H. WAITE.